What is claimed is:

[Claim 1] 1. A self-calibrating optical reflectance probe system comprising:

an illuminant light source for illuminating a sample material;
optical pickup means for collecting reflected light from the sample material; and
an articulated white reference reflection standard adapted as an illuminant reference.

[Claim 2] 2. The self-calibrating optical reflectance probe system according to claim 1, wherein the illuminant light source comprises multiple illuminant light sources for redundancy.

[Claim 3] 3. The self-calibrating optical reflectance probe system according to claim 1, wherein the optical pickup means comprises multiple optical pickup fibers for diversity in reflected light detection.

[Claim 4] 4. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising an optical line source adapted for wavelength calibration and verification.

[Claim 5] 5. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising an articulated spectral reference standard for dynamic range verification.

[Claim 6] 6. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising an articulated transmissive filter for dynamic range measurement and/or wavelength calibration and verification.

[Claim 7] 7. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising an articulated shutter for dark reference.

[Claim 8] 8. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising a window through which light passes from the illuminant light source, the window being curved to reduce reflected light from the window surface.

[Claim 9] 9. The self-calibrating optical reflectance probe system according to claim 1, the probe system further comprising a mount employing a single sanitary pipe fitting and clamp.

[Claim 10] 10. A self-calibrating optical reflectance probe system comprising:

an illuminant light source for illuminating a sample material;
optical pickup means for collect reflected light from the sample material;
an optical line source adapted for performing wavelength calibration and verification;
a window through which light passes from the illuminant light source, the window being curved to reduce reflected light from the window surface;
a white reference reflection standard adapted for use as an illuminant reference; and

means for articulating the white reference standard into and out of an optical path through the probe system.

[Claim 11] 11. The self-calibrating optical reflectance probe system according to claim 10, wherein the illuminant light source comprises multiple illuminant light sources for redundancy.

[Claim 12] 12. The self-calibrating optical reflectance probe system according to claim 10, wherein the optical pickup means comprises multiple optical pickup fibers for diversity in reflected light detection.

[Claim 13] 13. The self-calibrating optical reflectance probe system according to claim 10, the probe system further comprising an articulated spectral reference standard for dynamic range verification and/or wavelength calibration and verification.

[Claim 14] 14. The self-calibrating optical reflectance probe system according to claim 10, the probe system further comprising an articulated transmissive filter for dynamic range measurement and/or wavelength calibration and verification.

[Claim 15] 15. The self-calibrating optical reflectance probe system according to claim 10, the probe system further comprising an articulated shutter for dark reference.

[Claim 16] 16. The self-calibrating optical reflectance probe system according to claim 10, the probe system further comprising a mount employing a single sanitary pipe fitting and clamp.

[Claim 17] 17. A mount for an optical reflectance probe system, the mount consisting essentially of a single sanitary pipe fitting and clamp.

[Claim 18] 18. The mount according to claim 17, wherein the mount further comprises an integral viewport window.

[Claim 19] 19. The mount according to claim 18, wherein the viewport window comprises a curved surface to reduce reflected light from the window.

[Claim 20] 20. A mount for an optical reflectance probe system, the mount comprising:

a housing containing the optical reflectance probe system and having an integral curved viewport window to reduce reflected light from the window surface; and

an assembly on the housing for mounting the housing, the assembly comprising a single sanitary pipe fitting and clamp.